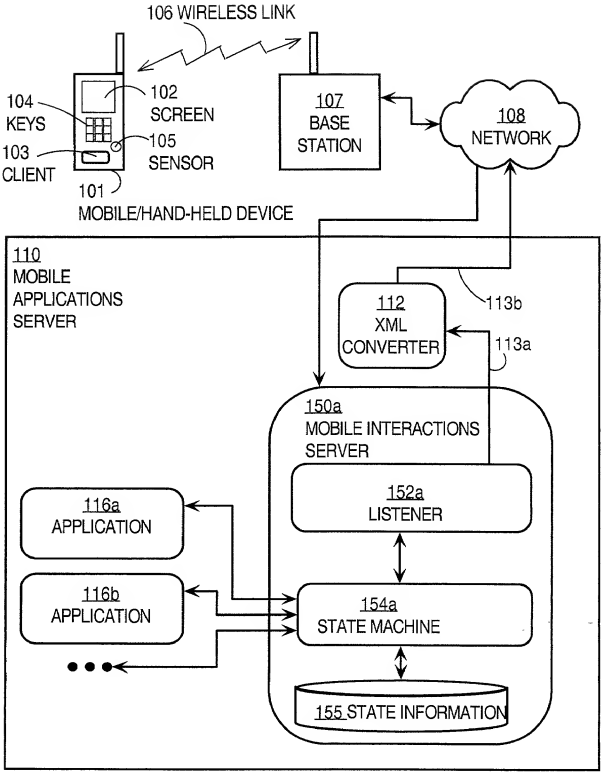
106 WIRELESS LINK
104
KEYS
102
SCREEN
103
CLIENT
105
SENSOR
101
MOBILE/HAND-HELD DEVICE
107
BASE
STATION
108
NETWORK
110
MOBILE
APPLICATIONS
SERVER
112
XML
CONVERTER
113b
113a
150a
MOBILE INTERACTIONS
SERVER
152a
LISTENER
116a
APPLICATION
116b
APPLICATION
154a
STATE MACHINE
155 STATE INFORMATION

FIG. 1A

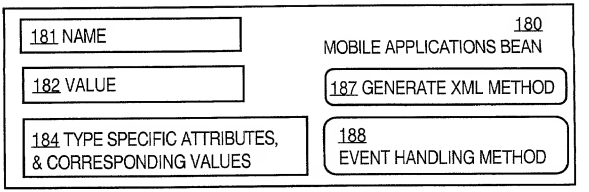
181 NAME
180
MOBILE APPLICATIONS BEAN
182 VALUE
187 GENERATE XML METHOD
184 TYPE SPECIFIC ATTRIBUTES, & CORRESPONDING VALUES
188
EVENT HANDLING METHOD

FIG. 1B

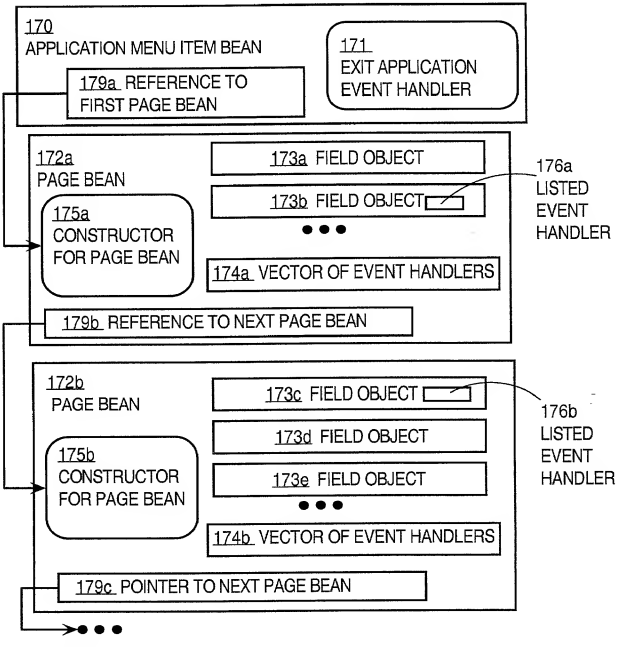
170
APPLICATION MENU ITEM BEAN
171
EXIT APPLICATION EVENT HANDLER
179a REFERENCE TO FIRST PAGE BEAN
172a
PAGE BEAN
173a FIELD OBJECT
173b FIELD OBJECT
176a
LISTED EVENT HANDLER
175a
CONSTRUCTOR FOR PAGE BEAN
174a VECTOR OF EVENT HANDLERS
179b REFERENCE TO NEXT PAGE BEAN
172b
PAGE BEAN
173c FIELD OBJECT
176b
LISTED EVENT HANDLER
173d FIELD OBJECT
175b
CONSTRUCTOR FOR PAGE BEAN
173e FIELD OBJECT
174b VECTOR OF EVENT HANDLERS
179c POINTER TO NEXT PAGE BEAN

FIG. 1C

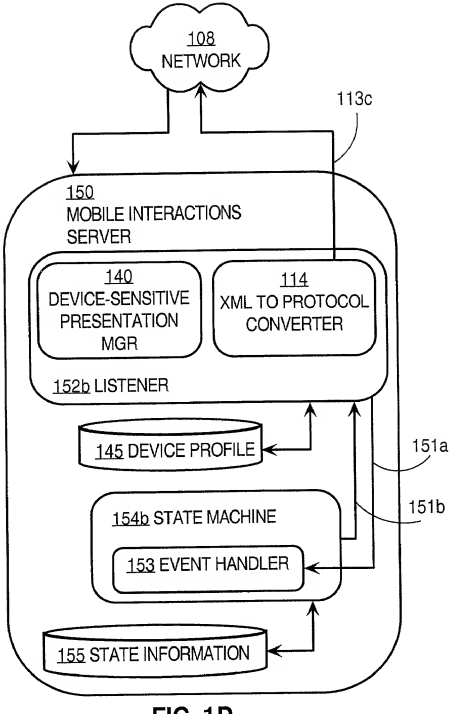
108
NETWORK
113c
150
MOBILE INTERACTIONS
SERVER
140
DEVICE-SENSITIVE
PRESENTATION
MGR
114
XML TO PROTOCOL
CONVERTER
152b LISTENER
145 DEVICE PROFILE
151a
154b STATE MACHINE
151b
153 EVENT HANDLER
155 STATE INFORMATION

FIG. 1D

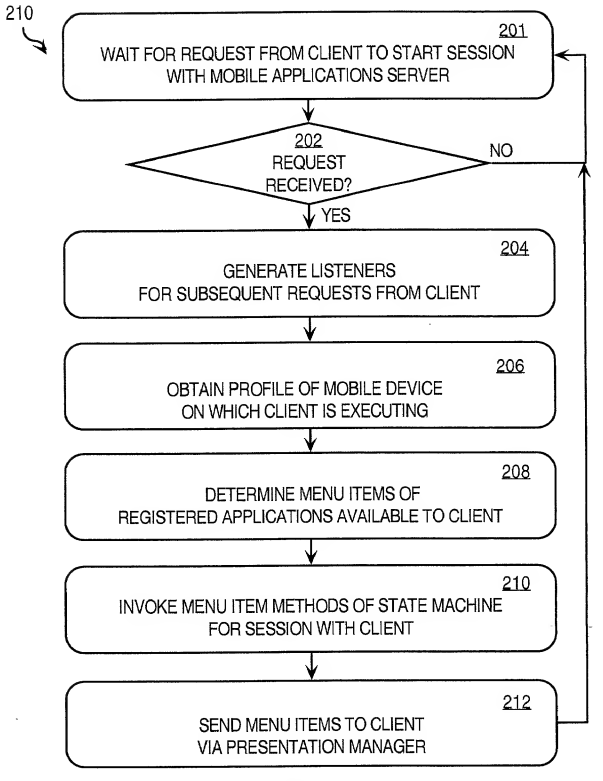
210
201
WAIT FOR REQUEST FROM CLIENT TO START SESSION WITH MOBILE APPLICATIONS SERVER
202
REQUEST RECEIVED?
NO
YES
204
GENERATE LISTENERS FOR SUBSEQUENT REQUESTS FROM CLIENT
206
OBTAIN PROFILE OF MOBILE DEVICE ON WHICH CLIENT IS EXECUTING
208
DETERMINE MENU ITEMS OF REGISTERED APPLICATIONS AVAILABLE TO CLIENT
210
INVOKE MENU ITEM METHODS OF STATE MACHINE FOR SESSION WITH CLIENT
212
SEND MENU ITEMS TO CLIENT VIA PRESENTATION MANAGER

FIG. 2A

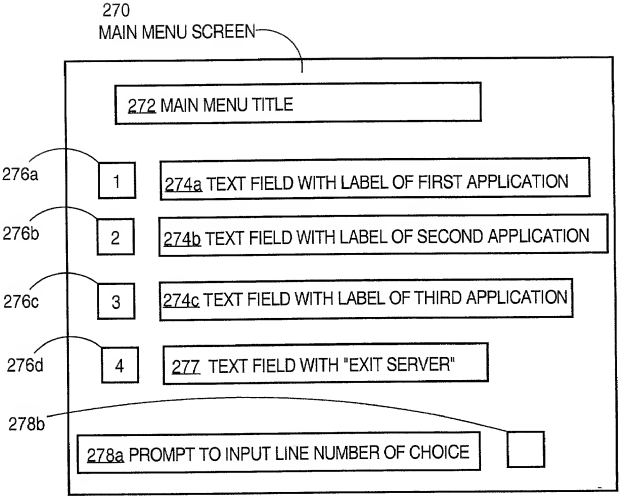
270
MAIN MENU SCREEN
272 MAIN MENU TITLE
276a
1
274a TEXT FIELD WITH LABEL OF FIRST APPLICATION
276b
2
274b TEXT FIELD WITH LABEL OF SECOND APPLICATION
276c
3
274c TEXT FIELD WITH LABEL OF THIRD APPLICATION
276d
4
277 TEXT FIELD WITH "EXIT SERVER"
278b
278a PROMPT TO INPUT LINE NUMBER OF CHOICE

FIG. 2B

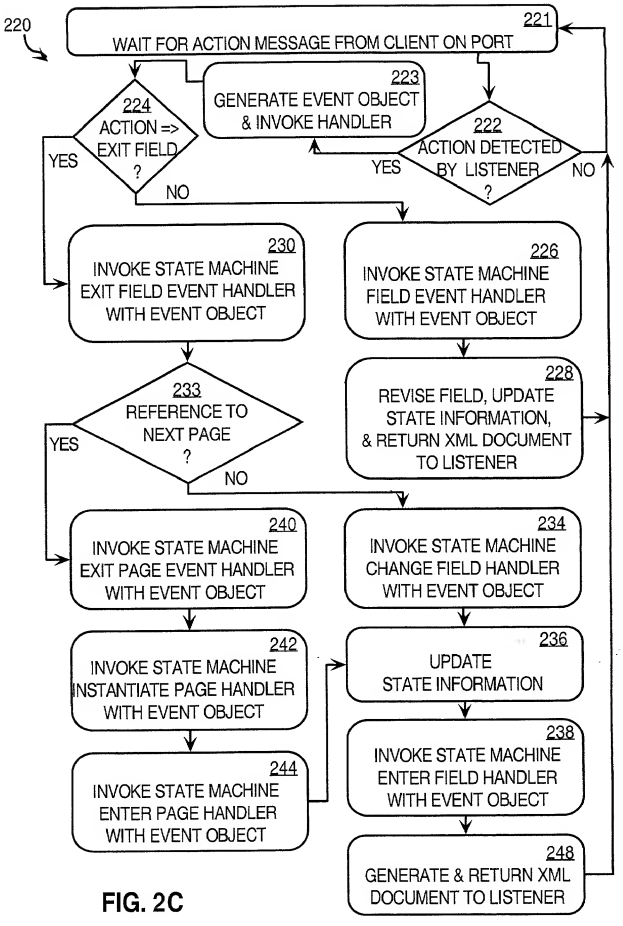
220
221
WAIT FOR ACTION MESSAGE FROM CLIENT ON PORT
223
GENERATE EVENT OBJECT & INVOKE HANDLER
224
ACTION => EXIT FIELD ?
YES
NO
222
ACTION DETECTED BY LISTENER ?
YES
NO
230
INVOKE STATE MACHINE EXIT FIELD EVENT HANDLER WITH EVENT OBJECT
226
INVOKE STATE MACHINE FIELD EVENT HANDLER WITH EVENT OBJECT
228
REVISE FIELD, UPDATE STATE INFORMATION, & RETURN XML DOCUMENT TO LISTENER
233
REFERENCE TO NEXT PAGE ?
YES
NO
240
INVOKE STATE MACHINE EXIT PAGE EVENT HANDLER WITH EVENT OBJECT
234
INVOKE STATE MACHINE CHANGE FIELD HANDLER WITH EVENT OBJECT
242
INVOKE STATE MACHINE INSTANTIATE PAGE HANDLER WITH EVENT OBJECT
236
UPDATE STATE INFORMATION
244
INVOKE STATE MACHINE ENTER PAGE HANDLER WITH EVENT OBJECT
238
INVOKE STATE MACHINE ENTER FIELD HANDLER WITH EVENT OBJECT
248
GENERATE & RETURN XML DOCUMENT TO LISTENER

FIG. 2C

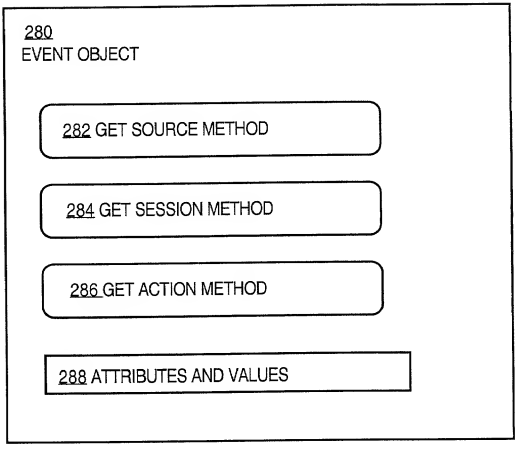
280
EVENT OBJECT
282 GET SOURCE METHOD
284 GET SESSION METHOD
286 GET ACTION METHOD
288 ATTRIBUTES AND VALUES

FIG. 2D

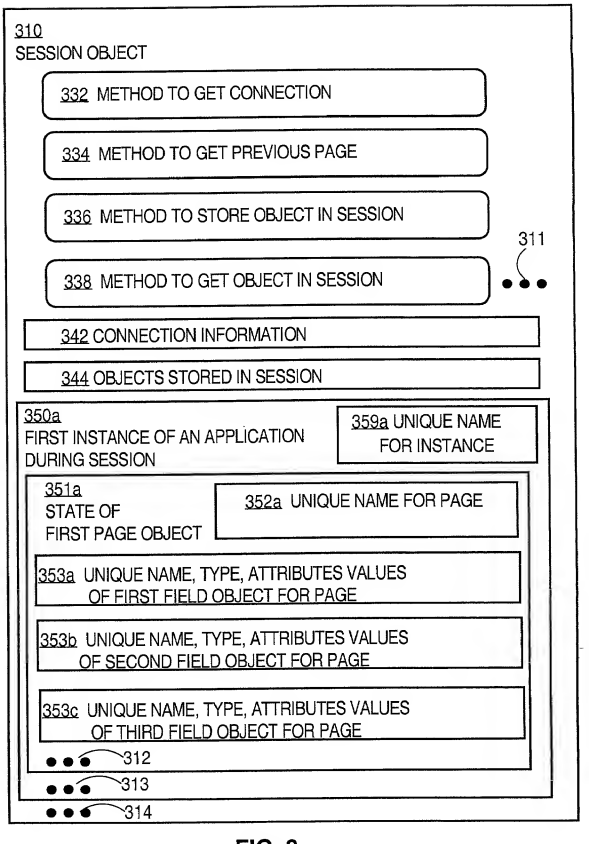
310
SESSION OBJECT
332 METHOD TO GET CONNECTION
334 METHOD TO GET PREVIOUS PAGE
336 METHOD TO STORE OBJECT IN SESSION
338 METHOD TO GET OBJECT IN SESSION
311
342 CONNECTION INFORMATION
344 OBJECTS STORED IN SESSION
350a
FIRST INSTANCE OF AN APPLICATION DURING SESSION
359a UNIQUE NAME FOR INSTANCE
351a
STATE OF FIRST PAGE OBJECT
352a UNIQUE NAME FOR PAGE
353a UNIQUE NAME, TYPE, ATTRIBUTES VALUES OF FIRST FIELD OBJECT FOR PAGE
353b UNIQUE NAME, TYPE, ATTRIBUTES VALUES OF SECOND FIELD OBJECT FOR PAGE
353c UNIQUE NAME, TYPE, ATTRIBUTES VALUES OF THIRD FIELD OBJECT FOR PAGE
312
313
314

FIG. 3

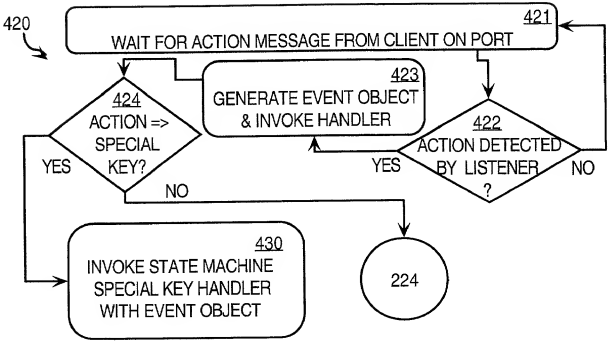
420
421
WAIT FOR ACTION MESSAGE FROM CLIENT ON PORT
423
GENERATE EVENT OBJECT & INVOKE HANDLER
424
ACTION => SPECIAL KEY?
YES
NO
422
ACTION DETECTED BY LISTENER ?
YES
NO
430
INVOKE STATE MACHINE SPECIAL KEY HANDLER WITH EVENT OBJECT
224

FIG. 4A

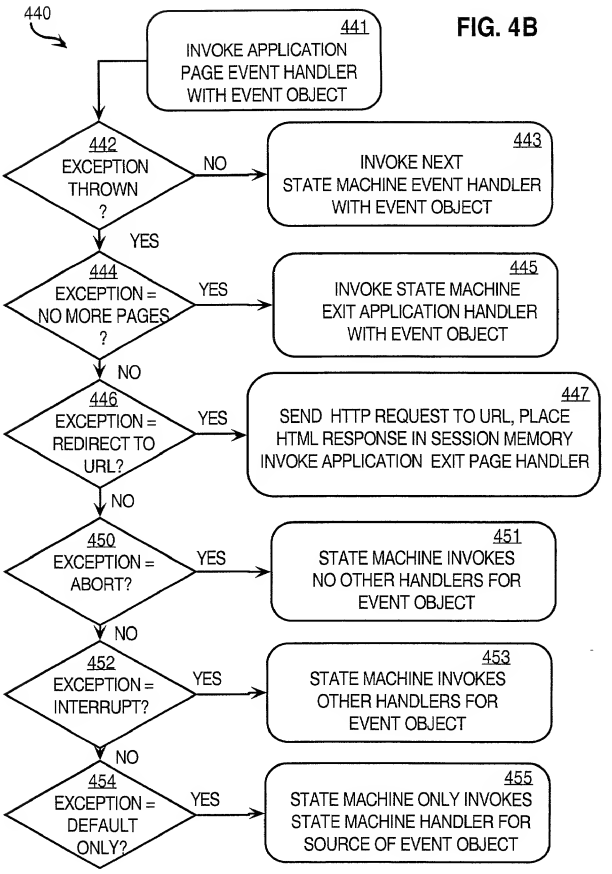
440
441
INVOKE APPLICATION PAGE EVENT HANDLER WITH EVENT OBJECT
442
EXCEPTION THROWN ?
NO
443
INVOKE NEXT STATE MACHINE EVENT HANDLER WITH EVENT OBJECT
YES
444
EXCEPTION = NO MORE PAGES ?
YES
445
INVOKE STATE MACHINE EXIT APPLICATION HANDLER WITH EVENT OBJECT
NO
446
EXCEPTION = REDIRECT TO URL?
YES
447
SEND HTTP REQUEST TO URL, PLACE HTML RESPONSE IN SESSION MEMORY INVOKE APPLICATION EXIT PAGE HANDLER
NO
450
EXCEPTION = ABORT?
YES
451
STATE MACHINE INVOKES NO OTHER HANDLERS FOR EVENT OBJECT
NO
452
EXCEPTION = INTERRUPT?
YES
453
STATE MACHINE INVOKES OTHER HANDLERS FOR EVENT OBJECT
NO
454
EXCEPTION = DEFAULT ONLY?
YES
455
STATE MACHINE ONLY INVOKES STATE MACHINE HANDLER FOR SOURCE OF EVENT OBJECT

FIG. 4B

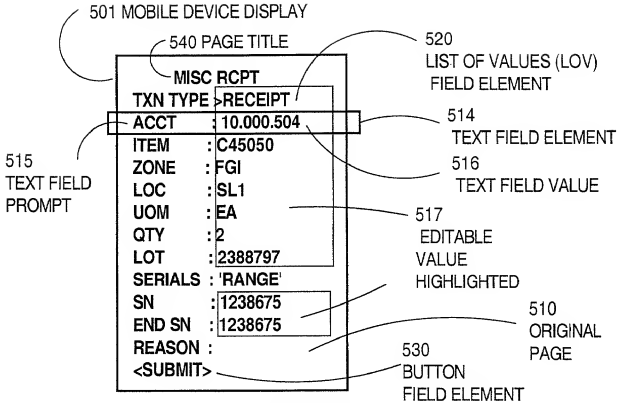
501 MOBILE DEVICE DISPLAY
540 PAGE TITLE
MISC RCPT
TXN TYPE :RECEIPT
ACCT : 10.000.504
ITEM : C45050
ZONE : FGI
LOC : SL1
UOM : EA
QTY : 2
LOT : 2388797
SERIALS : 'RANGE'
SN : 1238675
END SN : 1238675
REASON :
<SUBMIT>
520
LIST OF VALUES (LOV)
FIELD ELEMENT
514
TEXT FIELD ELEMENT
516
TEXT FIELD VALUE
515
TEXT FIELD
PROMPT
517
EDITABLE
VALUE
HIGHLIGHTED
510
ORIGINAL
PAGE
530
BUTTON
FIELD ELEMENT

FIG. 5A

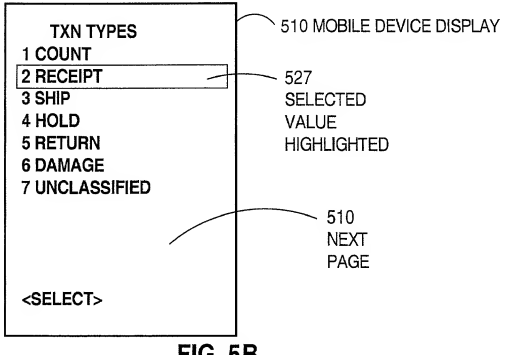
TXN TYPES
1 COUNT
2 RECEIPT
3 SHIP
4 HOLD
5 RETURN
6 DAMAGE
7 UNCLASSIFIED
<SELECT>
510 MOBILE DEVICE DISPLAY
527
SELECTED
VALUE
HIGHLIGHTED
510
NEXT
PAGE

FIG. 5B

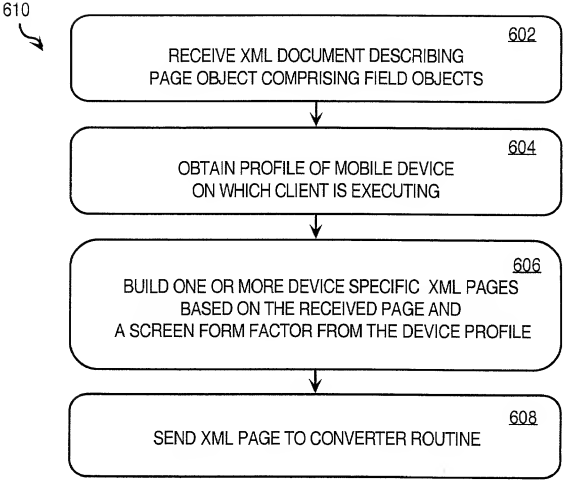
610
602
RECEIVE XML DOCUMENT DESCRIBING
PAGE OBJECT COMPRISING FIELD OBJECTS
604
OBTAIN PROFILE OF MOBILE DEVICE
ON WHICH CLIENT IS EXECUTING
606
BUILD ONE OR MORE DEVICE SPECIFIC XML PAGES
BASED ON THE RECEIVED PAGE AND
A SCREEN FORM FACTOR FROM THE DEVICE PROFILE
608
SEND XML PAGE TO CONVERTER ROUTINE

FIG. 6A

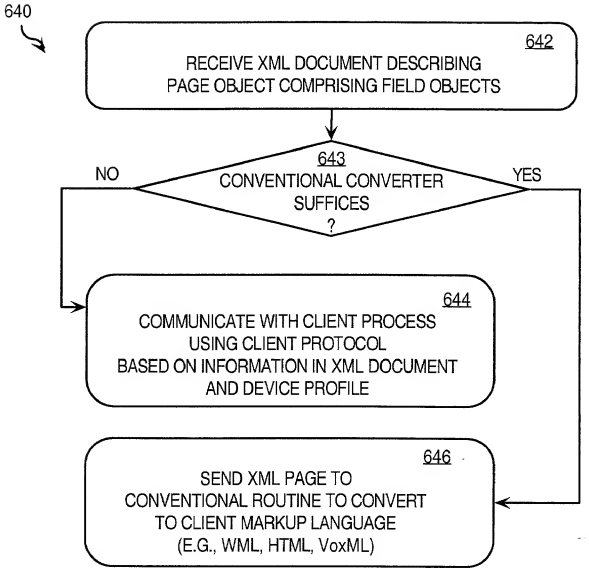
640
642
RECEIVE XML DOCUMENT DESCRIBING PAGE OBJECT COMPRISING FIELD OBJECTS
643
CONVENTIONAL CONVERTER SUFFICES ?
NO
YES
644
COMMUNICATE WITH CLIENT PROCESS USING CLIENT PROTOCOL BASED ON INFORMATION IN XML DOCUMENT AND DEVICE PROFILE
646
SEND XML PAGE TO CONVENTIONAL ROUTINE TO CONVERT TO CLIENT MARKUP LANGUAGE (E.G., WML, HTML, VoxML)

FIG. 6B

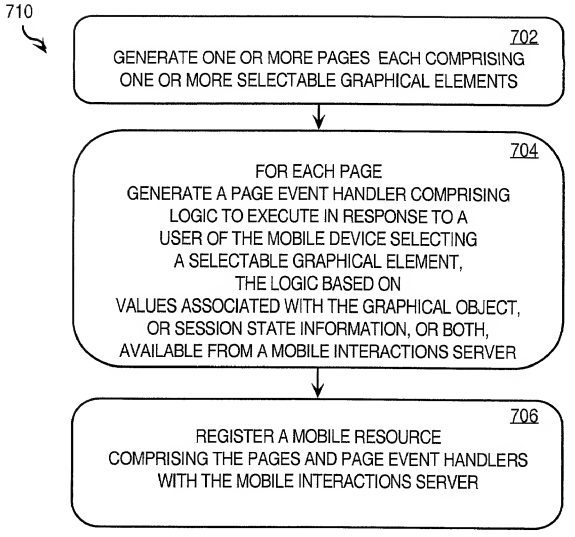
710
702
GENERATE ONE OR MORE PAGES EACH COMPRISING ONE OR MORE SELECTABLE GRAPHICAL ELEMENTS
704
FOR EACH PAGE
GENERATE A PAGE EVENT HANDLER COMPRISING LOGIC TO EXECUTE IN RESPONSE TO A USER OF THE MOBILE DEVICE SELECTING A SELECTABLE GRAPHICAL ELEMENT, THE LOGIC BASED ON VALUES ASSOCIATED WITH THE GRAPHICAL OBJECT, OR SESSION STATE INFORMATION, OR BOTH, AVAILABLE FROM A MOBILE INTERACTIONS SERVER
706
REGISTER A MOBILE RESOURCE COMPRISING THE PAGES AND PAGE EVENT HANDLERS WITH THE MOBILE INTERACTIONS SERVER

FIG. 7

TOTES0 87622860
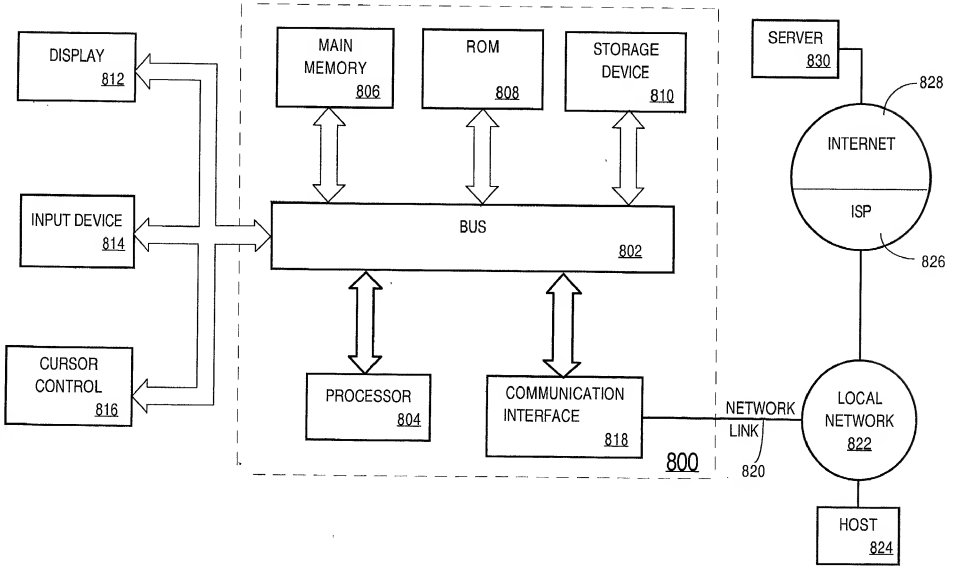
FIG. 8